

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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REPORT

SUBJECT Testing Equipment at the Leningrad Construction Engineering Institute

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A listing of equipment used for structural tests at the Leningrad Order of Labor Red Banner Construction Engineering Institute

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The listing includes the Soviet designations for equipment and instruments, a brief note on the characteristics and purpose of the equipment, and a reference to the plant or institution responsible for its production.

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Following is a list of the basic equipment and instruments used for structural tests in the Mechanical Laboratory of the Leningrad Institute of Civil Engineering. ³

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No.	Name	Technical characteristics and purpose	
MACHINES			
1.	Universal testing machine for 50 ton with the pulsator for 25 ton. Type ¹ RM-1	Tensile, compression and bent tests under the static load up to 50 ton and the pulsating load up to 25 ton with the frequency up to 600 c.p.m. Error in the readings of dynamometer $\pm 1\%$	The plant "3 M" Armavir
2.	Universal testing machine for 50 ton. Type ² 4 M-50	Tensile, compression and bent tests under the static load up to 50 ton	The Kharkov Polytechnical Institute
3.	Machine for fatigue testing of metals by bending. Type "H4"	Fatigue testing of round sample by bending combined with shear	The Ministry of Machines and Instrument Industry
4.	Gagarin's press for the loading up to 5 ton	Compression - Tension tests (with reverser) of small samples (3 - 6 mm) with diagram plotting	
5.	X-ray unit of WAPN -10 type	X-ray examination of materials to find defects	Ministry of Electrical Industry, USSR

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| 6. Machine for tensile strength tests for 250 kg load. Type PPM 250 | Tensile strength tests of various materials with the high deformation ability | The Ministry of Chemical Industry, USSR, the plant "Metallist," Lenin-grad |
| 7. Machine for tensile strengths for 5 ton. Type P-5 | Tensile strength tests of materials | The plant "3 M" Armavir |

INSTRUMENTS

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| 1. Oscillograph M 10-2 with eight loops | Recording of dynamic processes of the frequency up to 5000 c.p.s. with simultaneous recording of 8 processes | "Vibrator" |
| 2. Enlarger M -10 for the oscillograph M 0-2 | Five times enlargement of the oscillograms of the oscillograph M 0-2 | "Vibrator" |
| 3. Device for measuring plasticity. Type UD-2 | Measurements of static elasticity with resistance pick-ups, sensitivity 10-5 | The plant: "Krasny Isobretatel." |
| 4. Three channel tensometric unit | Investigation of dynamic processes with the help of resistance pick-ups. Frequency of the oscillations recorded up to 1000 c.p.s. | Electrotechnical Institute, Lenin-grad |
| 5. Eight channel tensometric unit 8 AH4-7/1 | The same with the frequency recorded up to 1000 c.p.s. | Same as above |
| 6. Ball hardness gauge | Brinell hardness test. Tolerable error $\pm 1\%$ | The plant "Krasnolit" Krasnodar |
| 7. Aistov's calibrating machine. Type 4K 1 A-5 | Calibration of tensometers. Precision $\pm 0.1 \mu$ | The Leningrad Institute of Civil Engineering |
| 8. Dashechkiv's comparator. Type KB-2 | Field deformation tests. Precision $\pm 10 \mu$ | Same as above |
| 9. Aistov's tensometer. Type T-A-2 | Deformation measurements under laboratory and field conditions. Precision $\pm 1 \mu$ | Same as above |
| 10. Aistov's tenso-shearmeter, Type TCA | Measurements of longitudinal and shear deformation. Precision $\pm 1 \mu$ | Same as above |
| 11. Aistov's device for measurement of linear deformation of the samples made of raw concrete during their solidification. | Precision 1μ | Same as above |
| 12. Aistov's clinometer. Type KA-4 | Measurement of incline level of structures. Precision $\pm 0.02 - 0.04$ mm | Same as above |
| 13. Aistov's deflectometer. Type 1 A-3 | Measurement of displacement of separate points of structures. Precision $\pm 0.02 - 0.04$ mm | Same as above |

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| 14. Polarisation projector. Type ПП 0-4 | Optical investigation of stress | Leningrad State University |
| 15. Vibroscope "BK" | Investigation and elimination of vibration | Leningrad Tool Plant |
| 16. Ultrasonic defect detector. Type Б4-8P | Investigation of defects in sheet material | |
| 17. Horizontal optical indicator Н К Г | Measurement of linear strength.
Precision ± 0.0002 mm | OM3 |
| 18. Vertical optical indicator ВБ Г with the head КНХ | Measurement of linear strength.
Precision ± 0.0002 mm | OM3 |
| 19. High precision level HA-1 | High precision levelling | OM3 |

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Following is a list of equipment of the Laboratory of Continuous Tests of the Leningrad Institute of Civil Engineering.

1. Machine for tensile strength tests with the capacity five tons of "P-5" type of screw action with hand and electric drive, for standard testing of wooden samples. Range of measurement 200-5000 kg. The machine has four side scales with the ranges:
 - from 200 to 500 kg.
 - from 200 to 1000 kg.
 - from 250 to 2500 kg.
 - from 500 to 5000 kg.

The maximum distance between the clamps is 750 mm. The machine is made by the Armavir testing equipment plant.

2. Installation for bent testing with long time loading of 10 standard wooden samples. The loading is applied to the sample at the two points through the levers with the ratio 1 : 7. The installation is made according to the drawings by the Central Research Institute of Structures, Moscow.
3. Universal installation for continuous tensils, compression and bent testing of eight standard wooden samples. The load is applied to the samples through the levers with 20 - fold ratio (1::20). The installation is made by the Institute of Construction Mechanisms, Kiev.
4. Installations for continuous tensils and compression testing of one standard sample. Loading is applied to the sample through the levers with 20-fold ratio (1 : 20). The installation is made by the Experimental Plant of the Central Research Institute of Mechanical Treatment of Timber, Moscow.

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